

Amendments to the Claims

1. (Currently Amended) An isolated and purified protein constituting a mammalian neuronal cationic ASIC channel that is sensitive to amiloride and activated by protons, wherein the amino acid sequence is selected from the group consisting of SEQ ID NO: 2, SEQ ID NO: 4, AND SEQ ID NO: 8, or a functionally equivalent derivative thereof having at least 67% homology to SEQ ID NOs: 2, 4, or 8.

Claims 2-10 (Canceled)

E1 11. (Currently Amended) A nucleic acid molecule comprising a nucleic sequence coding for the protein constituting a cationic channel according to ~~one of claims 1, 2, 3 and 5.~~

12. (Previously Amended) The nucleic acid molecule according to claim 11, comprising the nucleic sequence bounded by nucleotides 123 and 1700 of the sequence represented in SEQ ID NO: 1.

13. (Previously Amended) The nucleic acid molecule according to claim 11, comprising the nucleic sequence bounded by nucleotides 1 and 1542 of SEQ ID NO: 3.

14. (Canceled)

15. (Previously Added) The nucleic acid molecule according to claim 11, comprising the nucleic sequence bounded by nucleotides 109 and 1785 of SEQ ID NO: 7.

16. (Canceled)

17. (Previously Amended) A vector comprising at least one nucleic acid molecule according to claim 11, combined with control sequences.

18. (Currently Amended) A method for producing a protein according to ~~one of~~ claims 1, 2, 3 and 5 comprising:

- transferring a nucleic acid molecule comprising a nucleic acid sequence encoding the protein or a vector comprising said nucleic acid molecule into a cell host,
- culturing said cell host under conditions allowing production of the protein, and
- isolating the protein.

El 19. (Currently Amended) A method for expressing a protein according to ~~one of~~ claims 1, 2, 3 and 5 comprising:

- transferring a nucleic acid molecule comprising a nucleic acid sequence encoding the protein or a vector comprising said nucleic acid molecule into a cell host, and
- culturing said cell host under conditions allowing production of the protein.

20. (Previously Amended) The method according to claim 18, wherein the cell host is a bacteria or a eukaryote cell selected from the group consisting of yeasts, mammal cells, plant cells and insect cells.

21. (Currently Amended) A transformed cell expressing the mammalian neuronal ~~amiloride-sensitive proton-activated cationic~~ ASIC channels obtained by the method according to claim 18.

22. (Currently Amended) A method for screening a substance capable of modulating activity of mammalian neuronal cationic ASIC channels, comprising:

measuring the current of said mammalian neuronal cationic ASIC channel prior to contacting said substance with said cells

contacting variable quantities of a substance to be tested with the cells according to claim 21;
measuring changes in current caused by the substance on ~~amiloride-sensitive proton-activated~~said mammalian neuronal cationic ASIC channels; and

determining that the substance is capable of modulating activity of the mammalian neuronal cationic channels if the ~~change in current is above a selected value~~different then current measured prior to contacting said substance with said cells.

23. (Previously Amended) The method according to claim 22, wherein said substance is capable of modulating the perception of acidity and affect nociception and taste transduction.

Claims 24-25 (Canceled).

26. (Currently Amended) The method according to claim 19, wherein the cell host is either a prokaryote or an eukaryote selected from the group consisting of ~~prokaryotes of bacteria, yeasts, or cells of mammals, plants, or and insects and eukaryotes of bacteria, yeasts or cells of mammals, plants or insects.~~

27. (Currently Amended) A transformed cell expressing the mammalian neuronal amiloride-sensitive proton-activated cationic ASIC channels obtained by the method of claim 19.

28. (Currently Amended) A method for screening substances that are capable of modulating activity of mammals neuronal cationic channels, comprising:

measuring the current of said mammalian neuronal cationic ASIC channel prior to contacting

said substance with said cells

contacting variable quantities of a substance to be tested with the cells according to claim 27;

measuring changes in current caused by the substance on ~~amiloride-sensitive proton-activated~~
said mammalian neuronal cationic ASIC channels; and

determining that the substance is capable of modulating activity of the mammalian neuronal
cationic channels if the ~~change in current is above a selected value~~different then current measured
prior to contacting said substance with said cells.

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29. (Previously Amended) The method according to claim 28, wherein said substance is capable of modulating the perception of acidity and affect nociception and taste transduction.
